DEVELOPMENT OF THE FARM GAS TRACTOR



Breaking Virgin Soll in Montana.

tractor pulling two plows at two miles

an hour will do the same amount of

work as one pulling one plow and trav-

eling at four miles an hour, other con-

ditions being equal, and the horse

power developed at the drawbar is the

same, because the element of time en-

ters into the determination of horse

power. The slower any given tractor

is geared to move the greater will be

the load which it can pull at the draw-

bar, as it pulls it less rapidly. The

amount of work done and the total

amount of power exerted will remain

It is obvious that in the case men

tioned the tractor pulling one plow

and running twice as fast as the one

pulling two plows must move its own

weight over the ground twice as many

times as will the other tractor. If the

weight of the two tractors is the same,

it will be seen that twice as much

power has been expended in moving

the weight of the high-speed tractor

as has been used by the one of low

A great many farmers find it diffi-

cult to understand why a tractor of,

say, ten horse power at the drawbar

will not pull as heavy a load as will

ten horses. This is not because a mechanical horse power is less than

the amount of power developed by a

horse, but is because of the fact that

a horse has an enormous overload ca-

pacity-that is, a great deal stronger

pull than he should normally main-

was double for a few minutes it would

stall; while ten horses under similar

conditions could readily increase their pull sufficient to meet the in-

From this it will be seen that in

cases where the draft will vary (and

this occurs in practically all kinds of

farm work because of grades, soil va-

it can pull up the steepest grade or

through the toughest soil in the field

can pull under more favorable condi-

tions in the same field. It will also

be apparent that the working load of

a tractor under ordinary farm condi-

tions is considerably less than the

normal load for its drawbar equivalent

in horses, that is, a tractor of ten

horse power on the drawbar will not

rull, except under constantly favor-

able conditions, the load which a ten-

horse team would normally pull. The

difference might be said to be entire-

ly in the overload capacity of these

two prime movers. With a tractor

its maximum power is practically its

normal power because it is capable of

pulling this load continuously but can-

not carry anything in excess of this.

On the other hand, the horse's nor-

mal load is much less than what he

Until a definite authoritative stand-

ard of rating tractors has been adopt-

ed, it is recommended that farmers

when comparing different 'makes of

tractors pay more attention to the

amount of work actually done under

like conditions and with practically

the same fuel consumption than to the

USING A SEPARATOR

Cool-Cold Skim Milk Is Not

Good for the Calves.

The milk should be strained at once

after milking while still warm. If al-

lowed to cool the separator is likely

to clog, and too much fat is lost in

the skim milk, and the cold skim milk

when fed to the calves is likely to

During the cold weather, pour a lit-

tle hot water into the separator just

before separation. This warms the separator parts, thereby preventing

Can for Grub Worms.

When digging the garden have

cause scours and indigestion.

can do in an emergency.

catalogue ratings.

tain hour after hour.

creased draft.

practically the same.

speed.

(Prepared by the United States Department of Agriculture.)

The rapid progress which has been occurring in the development of the farm gas tractor and the constantly increasing number of men who are purchasing or contemplating the purchase of one of these outlits seem to warrant the issuing of some information with regard to a feature concerning which there is considerable confusion, i. e., the power ratings of

Nearly everyone knows the definition of "horse power" as given in school arithmetics, etc., namely, "tho power required to raise a weight of 33,000 pounds to a height of one foot in one minute." As this is a definite, fixed unit of power, one would naturally suppose that the horse-power ratings of two tractors would be a logical and reliable means of comparing their ability to perform work; that a tractor rated at 30 horse power on the drawbar would be twice as powerful and capable of doing twice as much work as one rated at 15 horse power on the drawbar, for example. This supposition would be correct but for the fact that there has been no definite standard used in ascertaining the horse power developed by tractors and the percentage of the power actually developed, which should be taken for their catalogue rating. The various manufacturers have followed their own judgment in the matter, and as a result several methods of rating are being used, with a consequent lack of

uniformity. It is because of this fact that at the present time it is quite common to find two tractors doing practically the same amount of work and clearly of about equal power although with widely different catalogue ratings. It is obvious that either the outfit with a low catalogue rating has been underrated by its manufacturer or that the second machine has been overrated, or perhaps both have occurred. It would seem advisable, therefore, that steps be taken to bring about a standard rule for ascertaining and designating the horse power of tractors. It is not riation, etc.) the load which a tractor so important, perhaps, what particu- will handle satisfactorily is that which lar method is followed so long as the same method is used by all manufacturers, thus avoiding having machines of the same power given such varying ratings.

A movement is already on foot in the department to bring about the adoption of some standard. Until one has been decided upon and adopted, it is suggested that farmers, in comparing different makes of tractors, should give particular attention to the number of plows pulled and the amount of work done by the various machines, and that less attention be paid to the catalogue ratings.

When outfits can be seen working side by side, as at the tractor demonstrations which are being held throughout the country, the amount of work done is of more value in comparing the relative power than are the manufacturers' ratings, unless exactly the same method has been used in each

The term "brake" or "belt" horse power mean exactly the same thing and are used to denote the amount of power which the engine will develop and transmit to a belt for stationary work, such as threshing. This amount of power may be computed by different formulas er may be ascertained definitely by actual measure ment with a proper apparatus. This accounts for sorie of the lack of uniformity in ratings. Some companies carefully measure the amount of power developed by each engine before it leaves the factory and then give ticir engine a catalogue rating equivalent to its maximum power output: others will deduct a certain amount from the minimum horse power as ascertained and rate their engine at various percentages of this figure in order to be on the safe side, and to underrate their outflt rather than overrate it, while some companies do not measure the amount of power the engine actually develops, but compute With the diameter of cylinder, the length of stroke, and the number of | revolutions per minute known, the horse power which will be developed by an engine can be computed with a fair degree of accuracy, although there are a number of formulas used, sey- clogging and obtaining close skinming eral of which give somewhat different at once. results.

In comparing the power of two tractors the speed at which they are moved must always be considered. A tin can near by for the grub worms

STOMACH MISERY

"Pape's Diapepsin" fixes sick, sour, gassy stomachs in five minutes.

Time it! In five minutes all stomach distress will go. No indigestion, heartburn, sourness or belching of gas, acid, or eructations of undigested food, no dizziness, bloating, or foul breath.

Pape's Diapepsin is noted for its speed in regulating upset stomachs. It is the surest, quickest and most certain indigestion remedy in the whole world, and besides it is harmless.

Please for your sake, get a large fifty-cent case of Pape's Diapepsin from any store and put your stomach right. Don't keep on being miserable -life is too short-you are not here long, so make your stay agreeable. Eat what you like and digest it; enjoy it, without dread of rebellion in the stomach.

Pape's Dinpepain belongs in your nome anyway. Should one of the family eat something which doesn't agree with them, or in case of an attack of indigestion, dyspepsia, gastritis or stomach derangement at daytime or during the night, it is handy to give the quickest relief known. Adv.

Joke on Her. "My wife gave a reception yester-

"Did you attend?" "Yes; I played a practical joke on her. I got in line when she was receiving aud before she knew it she was smiling and saying she was glad to see me."--Missouri Mule

HOW TO RELIEVE KIDNEY PAINS

I have used Swamp-Root more or less this last few years, and have always got great relief. About three months ago I was taken down with severe pains through the back and limbs. I was very nervous and was very restless at night. I began taking your Swamp-Root and before I used a half bottle, I felt great relief, and I kept on taking it until I began to feel myself again. I have recommended it to my neighbors and friends, and several of them informed me that they have been greatly benefited by using it. I cannot say enough for Swamp-Root, and I heartily recommend it for Kidney trouble and Rheumatism.

You have my consent to publish this statement. I am 77 years old. Dr. Kilmer's Swamp-Root has saved my life.

LYDIA P. HUGUNIN,

LYDIA P. HUGUNIN,

LOS Angeles. Calif.

County of Los Angeles
On this 30th day of January A. D. 1914,
Lydia P. Hugunin, subscribed to the
above statement and made oath that the
same is true in substance and fact.
GRACE W. FRYE.
Notary Public.
Will Do For You A tractor, however, has very little overload capacity when pulling its normal load. Thus, if a tractor with a drawbar rating of ten horse power pulling its normal load of plows under average condition should strike a particularly hard spot where the draft

Notary Public.

Notary Public.

Notary Public.

Send ten cents to Dr. Kilmer & Co.,

Binghamton, N. Y., for a sample size bottle. It will convince anyone. You will also receive a booklet of valuable information, telling about the kidneys and bladder. When writing, he sure and mention this paper. Regular fifty-cent and one-dollar size bottles for sale at all drug stores.—Adv.

after being conducted through the other agent or telegrapher, and this, train coming, threw the switch so that cent palace occupied by the Billingtons, "has such a splendid vocabu-This load may be only half of what it

> "Do you think so?" her hostess re plied. "Josiah wanted to get her one of them escritoires, but I made up my mind right at the start that a vocabu lary would look better in a room fur nished like hers is, even if it didn't cost quite so much.'

'CASCARETS" FOR

No sick headache, sour stomach, biliousness or constipation by morning.

Get a 10-cent box now.

Turn the rascals out-the headache. billousness, indigestion, the sick, sour stomach and foul gases-turn them out to-night and keep them out with Cascarets.

Millions of men and women take a Cascaret row and then and never know the misery caused by a lazy liver, clogged bowels or an upset stom-

Don't put in another day of distress. IN SEVERE WEATHER Let Cascarets cleanse your stomach; remove the sour, fermenting food; take the excess bile from your liver Milk Should Not Be Allowed to and carry out all the constipated waste matter and poison in the bowels. Then you will feel great.

A Cascaret to-night straightens you out by morning. They work while you sleep. A 10-cent box from any drug store-means a clear head. sweet stomach and clean, healthy liver and bowel action for months. dren love Cascarets because they never gripe or sicken. Adv.

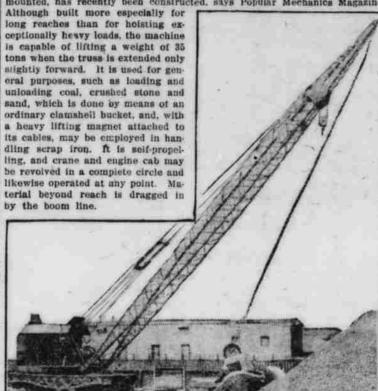
The United States last year im ported 27,562,361 pounds of black and white pepper, valued at \$2,852,665.

Ten smiles for a nickel. Always buy Red Cross Bag Blue; have beautiful, clear white clothes. Adv.

Quite Appropriate. "I have a good stabbing story." "Then we'll illustrate it with ple sty of cuts."

CRANE HAS ENORMOUS POWER

A locomotive crane provided with a swinging boom having a length of 85 feet, which is approximately 2½ times as long as the car upon which it is mounted, has recently been constructed, says Popular Mechanics Magazine.



Although the Truss Boom of This Lecomotive Crane Is 85 Feet in Length the Machine Is No More Difficult to Operate Than an Ordinary Steam

TOOK AWAY HIS NERVE

RAILROAD MAN TELLS WHY HE QUIT THE BUSINESS.

Frightful Accident Averted Only by a Lucky Chance Gave Him a Distaste for the Work Which He Could Not Overcome.

The little group at the club were liscussing the part that chance plays in our lives. Anecdote followed anecdote, and at last someone said to Weedon, the great banker, who happened to be one of the party:

"I have often heard, you speak of the time when you were a railroad man. Was it chance that led you to give it up?"

"It's rather a long story," replied the banker, "but it falls in so pat with our conversation that I think I'll tell

"I was very proud of my promotion to be dispatcher at Winsor, for I got it after less than a year at the telegraph key. Winsor was a thriving little city, with some factories and a lively distributing trade, and the yards were always busy. There was a pine barren west of us, almost without a house for fifteen miles of upgrade; and I had to give trains their orders clear through to where the coal lands began, at Gridley, twenty-five miles away. There was a turpentine camp half-way between, called Porter's, and "Your daughter," said Mrs. Oldcastle a long siding; but there wasn't and wing of the magnifi you know, was before the days of double tracks or automatic block signals.

"Things went smoothly at first. had already met a few nice people at Winsor, and the train crews were all friendly. The chief dispatcher, Harmon, at division headquarters a hundred miles down the line, helped me

all he could, too. "One black May night he called me at about eleven. 'Tell Bryan to take Porter's siding and let McCluskey by with an extra coa; train, was his message. So I set my light red against Bryan's train, the night freight westward, and soon I heard it come slowly into the yard. I had the order all ready for Bryan, the conductor, to take and sign for; and I waited there rather impatiently while the engineer made up his train. Harmon called me: 'Have you got Bryan's signature?"

'No, they're still drilling cars,' wired back.

"Finally the train came slowly up toward my window. I picked up the orders, but was surprised to hear the sudden clank and lerk as the engineer pulled out the throttle. 'He's got cars to drill in the upper yard,' I thought. So I ran out and waited for the cabcose lights to appear. 'Maybe Bryan will be on the steps,' thought I; and I beld the orders up as the caboose ap proached. Not a soul there! As the caboose flew by, I shricked; I ran after it; I stooped for a stone to thow, lost my balance, and fell while the train went out with ever-increasing speed into the black pine wilderness.

Stunned and bruised. I picked my self up and ran to my kev. the wrecker!' I telegraphed Harmon Bryan left against block without stopping.

"Gentlemen, you can Imagine the next hour in that quiet, lonely little room. A score of times I saw that beavy coal train coming down the grade out of the mountains and plump ing head-on into the climbing way freight. Why I didn't take to the woods, I don't know. I got up to run a dozen times, but something held me to my key.

"Suddenly I heard a whistle, 'The wrecker!' I said to myself; 'but it's too soon for that, and it's the wrong firection. That's toward Porter's. window; there was the blaze of a noisy thinker.

headlight up the line. I set the block against them; slowly the long coal train drew up along the platform, and saw McCluskey drop off the train.

"McCluskey was no ghost. He was a powerful, red-faced chap. 'What's up?" he said, as he came in. All 1 could reply was. How did you get here? Those were Bryan's orders. and he didn't take them; and I handed him the sheets that Bryan should have stopped for.

"I shall never forget his face. see it yet, with a sudden whiteness like flour or lime, coming over it; and I jumped up and caught him just as he keeled over. Pretty soon he came to. 'Say, boy!' were his first words Bryan was on Porter's siding. We went through there sixty miles an hour,' and off he went again. That time I had to work over him.

"Next day I went to headquarters Bryan and his engineer swore they had a clear signal, and that I must have been asleep. Luckily, Harmon could testify that I was awake, and had answered him that I had set the signal against Bryan. For some rea-son I never understood, Bryan's flagman told the truth. Bryan had gone to sleep, and so had his engineer; and a young fireman, who was learning to run the machine, had the throttle. When the truth came out, he testified that he was having trouble with the gauge a: he started out, back in the yards, and never thought of the signal at all. For the first time in weeks, they had a car to leave at Porter's siding; and to set it on the spur they had to back completely off the main line. The flagman heard McCluskey's

that it had missed. "That, gentlemen, is why I gave railroading."

"Safety First" in Railroading. During 1915 we had occasion to discuss the partial showing of increased efficiency and greater safety in pas senger train management, as disclosed in reports covering accidents and fatalities for less than annual periods. The spread on the "safety first" idea was clearly to be seen in the reduced figures, and, coincident with this, as we pointed out at the time, the large expenditures to which railway lines were putting them solves for improved equipments. The complete record for that year, now shown in the official figures, proves that equipment and efficiency, both cooperating toward the desired end of 'safety first," have made it practically certain that the appalling records made by American railway lines in earlier years in comparison with those of Europe, are things of the past .-St. Louis Globe-Democrat.

Risked Life to Save Deer. The constant effort put forth by the forestry service of the United States to conserve the wild folk of the forests never was better illustrated than in the report which has reached Cincionati from Halley, Idaho. Halley is near the Sawtooth forest, which is supervised by M. S. Benedict of the forestry service. Two deputy game wardens, John Devaney and J. B. Cummings, hearing of the desperate plight of a number of snowbound deer, as tually risked their lives to go to the aid of the deer, and later requisitioned Uncle Sam for hay to fer I the starving animals until such a time as they could recover their strength and be turned loose to forage for themselves -Cincinnati Times-Star.

The Truth Oozes Out. "Don't you believe it," said the sad eyed man who occasionally lets out an audible thought. "Don't believe what?" asked the party who was afflicted with the rub-

ber habit. "That a female of the species who has made up her mind to marry waits Phank God It must be Bryan's train for leap year to show up on the calennacking in.' I leaned far out of the dar before she proposes," replied the

The President's Wedding Cake -

-an example of decorative art never equaled in the history of cake decorating -an example of deliciousness, light-ness and wholesomeness that would be a pride to any house-wife. It is

> Another Testimonial for

CALUMET BAKING POWDER

This world - famous Wilson-Galt Wedding Cake was made by Mrs. Marian Cole Fisher and Miss Pansy Bowen, both well known Domestic Science Experts Calumet Baking Powder was used because both these experts use it exclusively in their work and know it is the purest, the safest, the most wholesome and economical to use.

So do millions of housewives who use it every bakeday-so will you if you try it on the things hardest to bake.

Send your name and address for free recipe and history of the Wedding Cake. Then bake one just like it yourself.

Received Highest Awards World's Pure Food Expo-sitions, Chicago and Paris

Calumet Baking Powder Co. Chicago

Gold handled by a dentist is always at a premium.

Be happy. Use Red Cross Bag Blue; much better than liquid blue. Delights the laundress. All grocers. Adv.

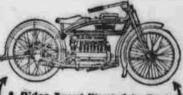
There is nothing insignificant.



5 Passenger, Gray & Davis, Electric Lights and Starter, 25 H. P.

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